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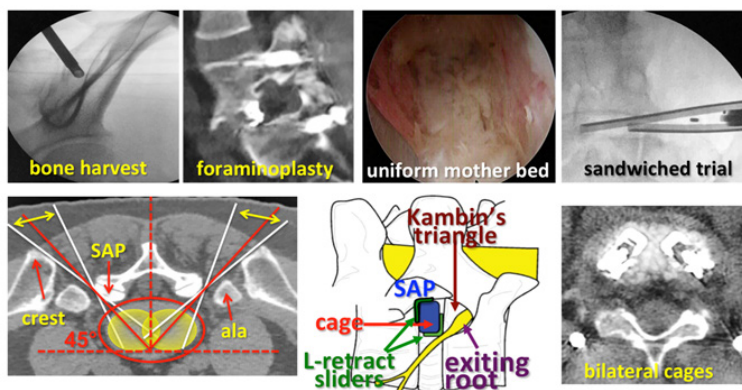


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Clinical practice of Percutaneous Full-Endoscopic Lumbar Interbody Fusion (PELIF) and its minimally invasiveness comparison with Minimally Invasive Surgery-Transforaminal Lumbar Interbody Fusion (MIS-TLIF)

To achieve minimization of muscle damage and bone resection, we have developed a percutaneous full endoscopic lumbar interbody fusion (PELIF). We report the detailed operation procedure, and moreover a comparison of its minimally invasiveness with that of the minimally invasive surgery-transforaminal lumbar interbody fusion (MIS-TLIF). 45 patients were treated with PELIF. Firstly, the cancellous bone chips were collected from the pelvis with a 5mm trephine. Foraminoplasty outside-in method can dilate Kamibin's triangle for the cage to be smoothly inserted. Total discectomy and uniform removal of cartilage endplate were performed using an 8 mm rotate-cutter under the endoscopy. One or two cages were inserted into the intervertebral space while sandwiched between two L-retract sliders, which protected the exiting root. On the other hand, 71 patients were treated with MIS-TLIF. MAST Quadrant™ retractor of MIS-TLIF is 4 times to 10 times larger than muscle retraction of PELIF. Operation times of PELIF and MIS-TLIF were not significantly different. PELIF bleeding is low and postoperative drainage bags were not required. PELIF had no infection, hematoma, or dural damage and was better than MIS-TLIF, but there was a tendency for more transient exiting root damage in PELIF. VAS, ODI and JOA of PELIF showed statistically significant improvement over MIS-TLIF at 2 weeks, 3 months and 1 year later postoperatively. The MRI cross-sectional area of degenerative spondylolisthesis was significantly improved after PELIF, but that of MIS-TLIF was significantly broader. Cross-sectional MRI at the L3/4 level with little influence on age showed less multifidus fat degeneration in PELIF than in MIS-TLIF. CT recognized insufficient fusion of PELIF tended to be less. PELIF is an indirect decompression without canal invasion. The dura mater, intestine, and large blood vessels don't appear in the surgical field. It is understood that PELIF is a less invasive surgery than MIS-TLIF.



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Recent Publications

1. Fujio Ito (2022) Practice of Percutaneous full-Endoscopic Lumbar Interbody Fusion. *Seikei Geka* 73(10): 1057~1065.
2. Shu Nakamura (2020) Methods and early clinical results of percutaneous lumbar interbody fusion. *Neurospine*. 17(4): 910-920.
3. Fujio Ito (2008) Percutaneous endoscopic lumbar discectomy (PELD)—Transforaminal approach and indications—. *Asian J Neurosurg.* 11: 41-46.

Biography

Fujio Ito is the CEO of Aichi Spine Group (Aichi Spine Hospital, Aichi Sports Artificial Arthroplasty Clinic, Tokyo Spine Clinic), General Manager of the Japan Spine Dock Society, President of MISS Summit Forum, and A guest professor of the First Affiliated Hospital of Zhengzhou University. He is passionate about Minimally Invasive Spine Surgery, including sacral epiduroscopic laser discectomy, percutaneous full-endoscopic discectomy, percutaneous stenoscopic decompression surgery, unilateral portal endoscopic laminectomy, percutaneous cervical foraminotomy, and percutaneous endoscopic lumbar interbody fusion surgery etc.

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